

What is claimed is:

1. A film trap and gate assembly for motion picture projectors, comprising:
  - a film movement channel, said film movement channel formed from a first member and a second member;
  - said film movement channel having a thickness of  $t$  and a width of  $w$ , wherein  $t$  is greater than the thickness of motion picture film and  $w$  is greater than the width of motion picture;
  - wherein  $w$  is greater than  $t$ ; and,
  - wherein motion picture film is disposed within and traverses said film movement channel.
2. The device of claim 1 wherein said first member comprises a first and second film trap rail assembly.
3. The device of claim 2 wherein said first film trap rail assembly comprises a first trap rail in communication with a first trap guide, and said second film trap rail assembly comprises a second film trap rail in communication with a second trap guide.
4. The device of claim 3 wherein said first trap rail assembly comprises a separable first trap rail in communication with a separable first trap guide.
5. The device of claim 3 wherein said first trap rail assembly comprises a first trap rail integral to said first trap guide.
6. The device of claim 3 wherein said second trap rail assembly comprises a separable second trap rail in communication with a separable second trap guide.
7. The device of claim 1 wherein said second member comprises a first and second film gate rail assembly.

8. The device of claim 7 wherein said first film gate rail assembly comprises a first gate rail in communication with a first gate guide, and said second film gate rail assembly comprises a second film gate rail in communication with a second gate guide.

9. The device of claim 8 wherein said first gate rail assembly comprises a separable first gate rail in communication with a separable first gate guide.

10. The device of claim 8 wherein said first gate rail assembly comprises a first gate rail integral to said first gate guide.

11. The device of claim 8 wherein said second gate rail assembly comprises a separable second gate rail in communication with a separable second gate guide.

12. A film trap assembly for motion picture projectors, comprising:

a trap body having an image aperture formed therein and having a first and second rail assembly attached thereto;

said first rail assembly comprising a first trap rail in communication with a first trap guide; and

said second rail assembly comprising a second trap rail in communication with a second trap guide.

13. The device of claim 12 wherein said first rail assembly comprises a separable first trap rail in communication with a separable first trap guide.

14. The device of claim 12 wherein said first rail assembly comprises a first trap rail integral to said first trap guide.

15. The device of claim 12 wherein said second rail assembly comprises a separable second trap rail in communication with a separable second trap guide.

16. The device of claim 12 wherein said second rail assembly comprises a second trap rail integral to said second trap guide.
17. The device of claim 12 further comprising a stripper plate attached to said trap body.
18. The device of claim 17 wherein said stripper plate comprises an angled stripper blade in communication with an attachment flange.
19. The device of claim 18 wherein said angled blade comprises an at least one degree angle.
20. A film gate assembly for motion picture projectors, comprising:
  - a gate body having an image aperture formed therein and having a first and second rail assembly attached thereto;
  - said first rail assembly comprising a first gate rail in communication with a first gate guide; and
  - said second rail assembly comprising a second gate rail in communication with a second gate guide.
21. The device of claim 20 wherein said first rail assembly comprises a separable first gate rail in communication with a separable first gate guide.
22. The device of claim 20 wherein said first rail assembly comprises a first gate rail integral to said first gate guide.
23. The device of claim 20 wherein said second rail assembly comprises a separable second gate rail in communication with a separable second gate guide.
24. The device of claim 20 wherein said second rail assembly comprises a second gate rail integral to said second gate guide.

25. The device of claim 20 further comprising a film tensioning device attached to said gate body.
26. The film tensioning device of claim 25, further comprising:  
  
a deformable body;  
  
at least two tensioning rollers in communication with said deformable body;  
and,  
  
a tensioning device in communication with the at least two tensioning rollers.
27. The device of claim 26 wherein said deformable body disposes a roller cradle, said roller cradle in communication with said tensioning device and said at least two tensioning rollers.
28. The device of claim 26 wherein said at least two tensioning rollers are comprised of a non-abrasive material.
29. The device of claim 26 wherein said at least two tensioning rollers are comprised of urethane.
30. The device of claim 20 further comprising a depth set device.
31. The device of claim 30 wherein said depth set device comprises a screw.
32. The film tensioning assembly for motion picture projectors, comprising:  
  
a deformable body;  
  
at least two tensioning rollers in communication with said deformable body;  
and,  
  
a tensioning device is communication with said at least two tensioning rollers and said deformable body.

33. The device of claim 32 wherein said deformable body is comprised of aluminum.
34. The device of claim 32 wherein said deformable body is comprised of steel.
35. The device of claim 32 wherein said tensioning device is a spring.
36. The device of claim 32 wherein said tensioning device is a spring attached to said deformable body with a tensioning screw.
37. The device of claim 36 wherein said spring is compressable by said tensioning screw.
38. The device of claim 32 wherein said film tensioning assembly further comprises a roller cradle, said roller cradle in communication with said at least two tensioning rollers and said tensioning device, said roller cradle positionable on said deformable body.
39. The device of claim 32 wherein said deformable body further comprises an attachment orifice wherein said attachment orifice is used to attach said film tensioning device to a film trap or film gate, or both.
40. The device of claim 39 wherein said attachment orifice is oval.
41. The device of claim 32 wherein said at least two tensioning rollers further comprise roller wheels.
42. The device of claim 41 wherein said roller wheels are comprised of non-abrasive materials.
43. The device of claim 41 wherein said roller wheels are urethane.
44. The device of claim 41 wherein said roller wheels further comprise bearings.

45. The device of claim 32 wherein said deformable body is comprised of aluminum.

46. The device of claim 32 wherein said deformable body is comprised of steel.

47. The film trap and gate system motion picture projectors, comprising:

a film trap comprising a trap body having an image aperture formed therein and having a first and second rail assembly disposed thereon;

a stripper plate attachable to said trap body, said stripper plate comprising an angled stripper blade in communication with an attachment flange;

a film gate comprising a gate body having a projection aperture formed therein and having a first and second rail assembly disposed thereon;

a film tensioning device attachable to said gate body, said film tensioning device comprising a deformable body having an attachment orifice formed therein and in communication with a roller cradle;

said roller cradle in communication with four tensioning rollers and a tensioning device, said tensioning device in communication with a tensioning screw, wherein the tension applied to the roller cradle by the tensioning device is adjustable by actuating said tensioning screw; and,

a film movement channel disposed between said film trap and said film gate, wherein said film trap engages said film gate thereby forming said film movement channel.

48. The device of claim 47 wherein said first trap rail assembly comprises a separable first trap rail and a separable second trap guide, and said second trap rail assembly comprises a separable second trap rail and a separable second guide.

49. The device of claim 47 wherein said first trap rail assembly comprises a first trap rail integral to a first trap guide, and said second trap rail is integral to said second trap guide.

50. The device of claim 47 wherein said first gate rail assembly comprises a separable first gate rail and a separable second gate guide, and said second gate rail assembly comprises a separable second gate rail and a separable second guide.

51. The device of claim 47 wherein said second gate rail assembly comprises a first gate rail integral to a first gate guide, and a second gate rail integral to said second gate rail.

52. A film trap and gate assembly for motion picture projectors, comprising:

a film trap having a first and second trap rail assembly, said first trap rail assembly comprising a first trap rail coupled to a first trap guide, and said second trap rail assembly comprising a second trap rail coupled to a second trap guide; and

a film gate having a first and second gate rail assembly, said first gate rail assembly comprising a first gate rail coupled to a first gate guide, and said second gate rail assembly comprising a second gate rail coupled to a second gate guide;

wherein motion picture film is positioned on said film trap rail and wherein said film trap rail assembly receives said gate rail assembly.

53. A film trap stripper plate for motion picture projectors, comprising:

a stripper blade;

an attachment flange;

said stripper blade attached to said attachment flange at an angle.

54. The device of claim 53 wherein said angle is at least one degree.

55. A motion picture projector, comprising:

a light source;

a film movement device capable of engaging a portion of motion picture film and moving said film past said light source;

a film trap and gate assembly capable of receiving said film portion, said film trap and gate assembly comprising a film movement channel, said film movement channel formed from a first member and a second member; wherein said film movement channel has a thickness of  $t$  and a width of  $w$ , and wherein  $t$  is greater than the thickness of motion picture film and  $w$  is greater than the width of motion picture; and,

a lens system capable of projecting and image onto a projection surface.

56. A film trap and gate calibration device for use in calibrating motion picture projectors, comprising:

a device body having a first member and a second member;

said first member having a thickness of  $t$  and a width of  $w$ , wherein  $t$  is greater than the thickness of motion picture film, and wherein  $w$  is greater than the width of motion picture film; and

said second member has a thickness of  $t$ , wherein  $t$  is less than the thickness of motion picture film.

57. The device of claim 56 wherein said first member is attached to said second member.

58. The device of claim 56 wherein said first member is integral to said second member.



59. A method of advancing motion picture film through a motion picture projector, comprising:

providing a motion picture projector;

locating motion picture film within said motion picture projector;

forming a film movement channel with a film trap and a film gate,

positioning said film within said film movement channel;

attaching said film to a film drive system; and

moving said film through said film movement channel, wherein said film intermittently contacts said film trap, or said film gate, or both.

60. The method of claim 58 wherein said film movement channel is formed by a trap rail assembly located on the film trap engaging a gate rail assembly located on said film gate.

61. The method of claim 58 further comprising engaging said film with a film tensioning device.

62. The method of claim 61 further comprising adjusting said film tensioning device to increase the tension applied to the film.

63. The method of claim 62 further comprising adjusting the film tensioning device to decrease the tension applied to the film.